Bifurcated Delta Mercury Control Program

Introduction

The purpose of this document is to provide a focused description of a possible "bifurcated" structure of the Delta Methylmercury (MeHg) Total Maximum Daily Load (TMDL) process (Delta TMDL). It presents:

- A general description of a bifurcated TMDL process,
- A Southern California example of a bifurcated TMDL process,
- A preliminary "vision" of the Delta TMDL including,
  - The proposed study area, and
  - The specific bifurcated approach for the Delta.
- Anticipated near-term requirements of, and implications to MeHg producers and dischargers,
- Potential long-term approaches to review and revise the Delta MeHg TMDL.

The Bifurcated TMDL Model

In late 2008 and early 2009, various Delta stakeholders met to discuss the feasibility of restructuring the Basin Plan amendment to provide for a more adaptive approach to establishing a Delta TMDL by October 2009. A bifurcated approach has been implemented in other parts of the State where TMDLs need to be developed quickly and there are information gaps or complicated regulatory options that would benefit from further detailed discussions. The basic model is to establish the technical parts of the TMDL and an adaptive implementation approach that allows for future revisions of the TMDL as data becomes available and water quality improvements occur. **The bifurcated approach recognizes that more information needs to be collected to:**

- **Confirm initial allocations and,**
- **Evaluate actions that can be implemented to meet allocations**.

The bifurcated approach sets up the framework for making certain the appropriate information is collected and the appropriate dialogue takes place with affected stakeholders.

EXAMPLE – Calleguas Creek Nitrogen TMDL
The Calleguas Creek Nitrogen TMDL adopted by the Los Angeles Regional Board includes a numeric target, waste load allocations for wastewater treatment plants and load allocations for agriculture and other nonpoint sources that would need to be achieved within a time schedule. In addition, the TMDL set interim limits for wastewater treatment plants that would apply in 4 years. A Nonpoint Source BMP evaluation committee was formed and an existing stakeholder committee agreed to take on the responsibility for developing and implementing a monitoring program. A study work plan was due from the stakeholder group in 1 year and the TMDL spelled out minimum monitoring requirements. The TMDL indicated that if this stakeholder process failed to produce the specified reports, the Regional Board would consider requiring dischargers to implement monitoring and special studies.

Delta Mercury TMDL
Consistent with longstanding commitments by the Regional Board to USEPA, the goal of the Board's Executive Officer is to deliver the Delta TMDL for Board approval by October 2009. The bifurcated approach would be used to address the unique hydrologic and geographic differences of the Delta and its tributary conditions. To apply this bifurcated approach to the TMDL and successfully achieve the target date, Board staff and stakeholders need to define the technical aspects of the TMDL (**Technical TMDL**) and they need to prepare an Implementation Framework (**Framework**), both described below. Attachment A presents a general description of the items to be included in a Basin Plan amendment.

Proposed TMDL Project Area
The proposed allocation approach is to organize the Delta into seven subareas rather than one massive geographic area. These subareas have been proposed based on watershed boundaries and existing data on water flows and mercury sources. Each subarea has different variables to be considered such as:

- Land uses,
- Discharger occurrence and distribution, and
- Tributary sizes and sources

For example, in the Sacramento River subarea, fish tissue mercury concentrations are 60% higher than Board staff's proposed fish tissue objective. To reduce the fish tissue concentration by 60%, current scientific research indicates that there needs to be a 60% reduction in the concentration of MeHg in the Sacramento River. Since the Board does not currently have sufficient information on which sources have the best potential for reducing their loads of MeHg, Board staff proposes to assign a 60% reduction in MeHg to apply to all dischargers in the Sacramento River subarea, including the tributary sources, except those dischargers with very low discharge MeHg concentrations.

Allocations would be assigned to:

- Wastewater treatment plants and urban areas (NPDES permitted facilities and municipal service areas),
- Managed wetland areas,
- Irrigated agricultural areas and
- Instream production (assigned to State and/or Federal agencies) for within Delta sources.

In essence, each subarea will be treated as a separate TMDL with each having distinct allocations that are consistent with the unique conditions of that subarea. Additionally, the watersheds upstream of each Delta subarea would be assigned the same reduction required for the downstream subarea. Board staff expects that similar discharger categories are present in the upstream areas as those identified in the Delta. Additional categories include upstream mines and dredge fields, unmanaged open space areas (e.g., forests and other native upland areas), and reservoir releases.

Technical TMDL Components
At this time, Board staff and scientific peer reviewers believe there is sufficient scientific rationale supporting the:

- Proposed fish tissue objectives;

- Linkage between MeHg in the fish and MeHg in water; and the
- General identification of sources.

If all MeHg sources can be reduced by the amounts suggested in the draft TMDL, current research suggests that the fish tissue objectives can be met. However, the main issue with the proposed mercury control program is whether the various sources identified in the TMDL can achieve the allocations by implementing feasible methylmercury and total mercury control actions. At this time, there is information that suggests some source categories can reduce MeHg loading, but there is much information that needs to be collected for other sources. To comply with State and Federal requirements, the Technical TMDL should include the following:

- Fish tissue objectives,
- Load and waste load allocations,
- Margin of safety, and
- An Implementation Framework.

Adaptive Implementation Framework

As stated above, the Technical TMDL will include allocations on a subarea-specific basis for the Delta. Over time, these allocations may be revised based on additional data. Additional information will be needed to determine if the allocations are appropriate and achievable or if the allocations for fish tissue objectives need to be changed. To support an atmosphere of learning and change (when appropriate), the Basin Plan amendment will include an adaptive approach to study MeHg sources and potential control methods, assess Delta conditions, and propose long-range revisions and solutions.

The proposal is to have a two-phased approach for the Delta mercury control program. Phase 1 would last about 8 years. The first 7 years would consist of a study period to gather more information about methylmercury production and to develop management practices. During the 8th year, staff would revise the TMDL based on the Phase 1 study results. Phase 2 would include implementation of feasible management practices developed in Phase 1.

The first step towards creating a long-range adaptive implementation approach is to prepare an Adaptive Implementation Framework (Framework) for the Basin Plan amendment. The Framework should describe the process that will be implemented over the next several years so there is sufficient information for the Board to reevaluate the allocations and implementation plan in 8 years. The Framework should be very clear so that dischargers and the regulated community know what actions need to be initiated and what information needs to be collected during the 7-year study period. The Framework should describe as best as possible, the process that will be implemented to meet the adaptive implementation goals of the TMDL. However, the Framework needs to be flexible enough so that efforts can be adapted as new information becomes available. The Framework must propose future approaches that are reasonable and equitable.

Components of the Proposed Framework

Dischargers would work with the Board to develop a comprehensive implementation Framework and to implement studies. We need to develop a detailed plan at the

beginning of Phase 1 that describes how the 7-year stakeholder process should be set up and implemented and exactly what is required from stakeholders. The Framework should provide some protection and incentives for working with the Board to complete studies.

What should be included in the Framework? It could include but not be limited to the following elements:

- Sufficient direction to ensure that a comprehensive, scientifically defensible, implementation program can be developed in 8 years. It should clearly describe the general information that needs to be collected (e.g., MeHg and inorganic mercury reduction studies and development of control plans) and describe the process that will be implemented to gather and evaluate the information. Board staff currently recommends that all discharger types both within and upstream of the Delta should participate in developing information and designing and implementing studies.
- Regional Board commitment to work with the State and Federal governments to develop an implementation plan to address instream methylmercury production both within the Delta and in tributaries.
- Interim requirements for NPDES wastewater treatment plant dischargers to ensure that the mercury problem does not get worse during the study period. The Board staff's current recommendation is to include narrative interim limits in the Basin Plan amendment for NPDES permittees and for them to implement mercury minimization programs. In addition, Board staff recommends that new WWTP dischargers monitor their effluent for methylmercury and total mercury.
- Managers of proposed wetland restoration projects should consider the potential MeHg enhancement from their projects and determine, in coordination with the Phase 1 studies, if there are any feasible control measures that could be implemented as the new projects are built.
- A plan for meeting the San Francisco Bay Water Board's inorganic mercury allocation.
- Specific MeHg and inorganic mercury reduction actions that should be initiated during the 8-year Phase 1 period (i.e., Cache Creek Settling Basin improvements and possibly other projects). These could be projects to address known substantial sources.
- Measures to reduce MeHg exposure for people eating contaminated fish.
- Regional Board commitment to develop TMDLs and control programs for Delta tributaries during Phase 1, and
- General framework for an offset program. The 2008 proposed Basin Plan amendment includes this element.

Attachment A is a preliminary proposal for the Framework. Board staff drafted this for review and modification by the Framework stakeholder group that is being convened for the first part of the bifurcated TMDL.

Requirements and Implications
Board staff anticipates that the adaptive approach will be used over the first seven years of the Delta TMDL. During that time, Board staff will focus on ensuring that MeHg conditions do not deteriorate (to the extent feasible) and partnering with all stakeholders to learn more about MeHg production, transport and exposure to humans and the environment.

A key perspective by the Board staff is the following: No practices or process changes would be required to be implemented toward meeting the allocations during the Phase 1 study period. The Board commits to reconsidering the TMDL, allocations, compliance time schedule, and implementation plan in about 8 years and would modify the Basin Plan as necessary based on new information. Dischargers would not be required to implement methylmercury reduction projects in Phase 1. In addition, the current Basin Plan amendment would not require dischargers to meet allocations until 2030. The Board may modify the compliance date at the end of Phase 1 based on the results of the Phase 1 studies. The Delta Mercury Control Program Phase 2 would contain implementation requirements, allocations, and a compliance time schedule. In the absence of the Phase 1 studies, the allocations and 2030 compliance date would not change.

<u>What applies to dischargers during the 7-year study period?</u>

- Dischargers in impaired Delta subareas and in tributary watersheds could collaborate on the methylmercury studies. The purpose of the studies is to develop methods to reduce MeHg from various source types and identify MeHg and total mercury sources that can be feasibly controlled. Feasible control methods may address direct MeHg inputs from external sources such as drains from irrigated agricultural and wetlands, urban runoff, wastewater treatment plant effluent, erosion from dredge fields, and mine site discharges, as well as MeHg inputs from within-channel sources such as open-water and wetland sediments.
- Stakeholders could work together to determine how to most quickly and effectively accomplish MeHg and total mercury source reductions to achieve the fish tissue objectives. The stakeholder group(s) also could work on a plan to prioritize methylmercury and inorganic mercury control actions within the watersheds.
- NPDES dischargers would be required to maintain performance-based effluent limits during the 7-year study period. Staff needs to work with USEPA and the dischargers on the Basin Plan language for this.
- New managed wetland projects should work with the other stakeholders and evaluate management practices that could be implemented to minimize MeHg production, and implement any reasonable practices.
- Dischargers can apply directly to the Board to implement offset projects and the Board would determine the amount of credit that would be accrued.

<u>What applies to dischargers after the end of the study phase?</u>
After the study phase, the Regional Board is required to reevaluate the TMDL allocations and time line, based on study results. At that time, the Regional Board will determine what requirements will apply. In the absence of the studies, the Board will

have limited information on which make modifications to the original allocations and compliance schedule.